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GEOGRAPHICAL NOTES.

BY

GEO. C. HURLBUT, *Librarian*.

THE SIXTH INTERNATIONAL GEOGRAPHICAL CONGRESS.—The following notice has been received :

PATRON: HER MAJESTY THE QUEEN.

VICE-PATRON: H.R.H. THE PRINCE OF WALES, K.G., K.T., K.P.,
G.C.B., ETC., ETC.

It has now been definitely arranged that the Sixth International Geographical Congress will be held in London early in August, 1895, the precise date to be announced later.

The Organizing Committee cordially invite all who take an interest in any of the various aspects of Geography to attend the Congress, and to assist in making it a scientific success.

As the Congress is INTERNATIONAL it is proper that the subjects submitted for consideration should be of wide importance and of permanent interest. The Organizing Committee, assisted by specialists, are now arranging a programme of subjects suited for discussion, and are in communication with geographers of several nationalities. The attendance at the meetings of those most able to discuss the subjects which may be introduced is invited, and may confidently be expected.

Communications intended for the Congress may be made in French, German, Italian, or English.

At present it is only considered necessary to announce the general heads under which the various subjects to be dealt with at the Congress will be grouped. They are as follows :—

- I. Mathematical Geography, including Geodesy.
- II. Physical Geography, including Oceanography, Climatology, and Geographical Distribution.
- III. Cartography and Topography.
- IV. Exploration.
- V. Descriptive Geography. Orthography of Place-names.
- VI. The History of Geography.

VII. Applied Geography—with special reference to History, Commerce, Colonization, etc.

VIII. Education.

At a later period it will be decided to what extent, if at all, the Congress will be divided into groups or sections for the purposes of holding meetings. But in any case business will be so arranged that as far as possible all the subjects for discussion and consideration will be brought before all the Members of the Congress. When necessary, Committees will be appointed to deal with special subjects.

The Organizing Committee reserves to itself the privilege of determining the order and nature of the proceedings on each day.

Geographical problems connected with Colonization will probably be dealt with in some detail at the Congress, and therefore those interested in or connected with the Colonies of all European countries, are specially invited to attend.

The subscription payable by Members is £1, or 25 francs. On payment of 10s. or 12.50 francs, the wives and daughters of Members can obtain all the privileges of membership, except the right to receive copies of any publications which may be distributed to Members.

A circular giving full details as to arrangements, subdivision of subjects, Exhibition, etc., will be issued next year.

It is requested that the contents of the present circular may be made as widely known as possible.

All communications should be addressed to the Secretary, International Geographical Congress, 1 Savile Row, London, W.

J. SCOTT KELTIE,
HUGH ROBERT MILL, } *Secretaries.*

LEONARD DARWIN,
Chairman of Committee.

1 SAVILE ROW, LONDON, W.,

November, 1893.

A FAMOUS CENTENARY.—The Municipality of Oporto proposes to celebrate on the 4th of March, 1894, the fifth centenary of the birth of Prince Henry the Navigator, whose name calls up the heroic story of Portuguese maritime adventure and achievement.

The man was worthy of the epoch and the nation, and the coming celebration interests the civilized world. Its significance is well set forth by Mr. Major, the biographer of Prince Henry, in these words :

“ When we see the small population of a narrow strip of the Spanish Peninsula, limited both in means and men, become, in an incredibly short space of time, a mighty maritime nation, not only conquering the islands and Western Coasts of Africa and rounding its Southern Cape, but creating empires and

founding capital cities at a distance of two thousand leagues from their own homesteads, we are tempted to suppose that such results must have been brought about by some freak of fortune, some happy stroke of luck. Not so : they were the effects of the patience, wisdom, intellectual labor, and example of one man, backed by the pluck of a race of sailors who, when we consider the means at their disposal, have been unsurpassed as adventurers in any country or in any age."

STANDARDS OF LENGTH AND MASS.—It is formally announced, in Bulletin No. 26 of the U. S. Coast and Geodetic Survey, that the International Prototype Metre and Kilogramme will in the future be regarded by the Office of Weights and Measures as fundamental standards, and that the customary units, the pound and the yard, will be derived therefrom in accordance with the Act of July 28, 1866. This Act establishes the following equations :

$$1 \text{ yard} = \frac{3600}{3937} \text{ metre.}$$

$$1 \text{ pound avoirdupois} = \frac{7000}{7000} \text{ kilogramme.}$$

The International Standards were prepared by the Bureau organized under resolution of the Metric Convention of 1875, in which seventeen governments were represented.

Copies of the International Prototypes were distributed by lot in 1889, and the United States received Metres Nos. 21 and 27, and Kilogrammes Nos. 4 and 20. The metres and kilogrammes are made of the same material, an alloy of platinum, with ten per cent. of iridium.

The seals, which had been placed on Metre No. 27 and Kilogramme No. 20 at the International Bureau of Weights and Measures near Paris, were broken January 2, 1890, in the Cabinet room of the Executive Mansion by the President of the United States, in the

Geographical Notes.

presence of the Secretaries of State and of the Treasury and a number of invited guests. This was the formal adoption of the National Prototype Metre and Kilogramme.

The announcement now made was approved by the Secretary of the Treasury, April 5, 1893.

THE NEW PACIFIC CABLE.—The work of laying the cable between Gomen, on the west coast of New Caledonia, and Bundaberg, on Hervey Bay, Queensland, was finished early in October. This is regarded as the first section of a cable which is ultimately to unite Australia with Canada and Europe by successive stages, from New Caledonia to Fiji, from Fiji to Samoa, from Samoa to the Fanning Islands, from the Fanning Islands to Honolulu and from Honolulu to Victoria, Vancouver Island.

A WONDERFUL CARPET.—The South Kensington Museum acquired last summer a carpet, which formerly adorned a tomb in the great mosque of the old capital city of Ardebil, in northwestern Persia. This work of art measures 34 feet 6 inches in length and 17 feet 6 inches in breadth. The knots (tied by hand) number 380 to the square inch, and for the whole carpet 33,037,200. The design consists of a central medallion in pale yellow, surrounded by cartouches of various colors, disposed on a dark-blue ground, covered with floral tracery. In each corner is the section of a large medallion like that of the centre; and each section is surrounded by cartouches. The border is composed of alternate long and circular panels, with a lobed outline

on a brown ground, covered with flowers. A panel at the upper end bears the inscription :

“ I have no refuge in the world other than thy threshold, my head has no protection other than this porchway. The work of the slave of the Holy Place, Maksud of Kashan, in the year 942 ” (A.D. 1535).

THE NATIONAL MIND IN GEOGRAPHICAL NAMES.*—In this little work, which is a reprint of articles contributed to *Ausland* for 1893, Dr. Egli, the author of *Nomina Geographica*, lays down the proposition that the bestowal of geographical names, considered as a manifestation of the genius of a people or a time, reflects the degree as well as the direction of culture in the different peoples. This leads to the following deductions :

1. Among primitive peoples the prevailing names will be those of natural objects ; among civilized men those relating to civilization ;
2. The simplest nature-names, consisting of the bare appellative, are products of the infancy of a people ;
3. A retrogression in the civilization of a people postulates a retrogression in the intrinsic worth of its new name-creations ;
4. The character of the body of geographical names corresponds to the spiritual endowments of a people ;
5. The prevailing civilizing influences in a people—the social, the political, the ecclesiastical, etc.—seek expression in the names of places.

These general principles are illustrated in a lively way and with abundant learning, by examples from the records of ancient and modern geography.

* *Der Völkergeist in den Geographischen Namen.* Von Dr. J. J. Egli, Professor in Zürich. 8°. Leipzig, Friedrich Brandstetter, 1894.

The percentage of culture-names bestowed by discoverers is very high, as appears from the following list of sixteen celebrated navigators (other than English): Kotzebue, 89.7 per cent.; Krusenstern, 86.7; Columbus, 64.4; Magellan, 76.7; Maurelle, 52.2; Mendaña, 69.2; Sarmiento, 65.2; Baudin, 91.6; Bougainville, 56.2; d'Entrecasteaux, 69.0; La Pérouse, 90.3; Barentz, 55.6; Le Maire, 72.0; Tasman, 92.3; Haast, 91.7; and Kane, 94.8. For eighteen English navigators Dr. Egli finds, on the whole, a higher percentage of culture-names: Dampier, 68.2 per cent.; Wallis, 59.4; Cook, 61.9; Shortland, 85.7; Flinders, 57.7; King, 80.3; John Ross, 95.9; Parry, 94.0; Franklin, 90.0; Beechey, 93.9; Fitzroy, 72.6; Mitchell, 85.2; Back, 90.0; Grey, 85.7; James Ross, 96.1; Stokes, 56.6; McClure, 95.5, and Belcher, 77.8.

A comparative table of names taken from various peoples and tribes shows in several instances a surprisingly high proportion of nature-names:

	Whole No.	No. of Nature-Names.
Eskimo - - - - -	43	39
Dravidian - - - - -	58	40
Malay - - - - -	98	81
Polynesian - - - - -	111	92
Rhaeto-Romanic - - - - -	122	101
Mongolian - - - - -	127	102
Negro - - - - -	135	106
Phoenician - - - - -	153	77
Samoied - - - - -	163	152
Chinese - - - - -	171	130
Persian - - - - -	174	68

	Whole No.	No. of Nature-Names.
Bhota - - - - -	177	137
Italian - - - - -	270	151
Hebrew - - - - -	321	223
Indian (Am.) - - - - -	324	229
Roman - - - - -	401	110

The national characteristics of the discoverers and colonists mark the nomenclature of the New World.

The Spaniards and the Portuguese sought their names in the Church Calendar, and the Netherlanders looked for theirs in the associations of their struggle with Spain; while the political history of France explains many of the French names in America and in the South Sea. The English were fond of proper names and names with a direct bearing on the position or the relation; and Dr. Egli cites, as a typical instance of the difference between them and the Spaniards in this matter, the names given to the four pointed islands at the western end of Magellan Strait. These islands, he says, were called by Sarmiento (1580) *The Four Evangelists*, by Hawkins (1594) the *Sugar Loaves*,* and by Narborough (1670) *Islands of Direction*, "because they formed a capital leading mark for the Strait of Magellan."

* This is an error. Hawkins says only: "From Cape Desire, some foure leagues north-west, lye foure ilands, which are very small, and the middlemost of them is of the fashion of a sugar-loafe."—*The Observations of Sir Richard Hawkins, etc.*, p. 141. Reprint, Hakluyt Society, London, 1847.

Dr. Egli's authority is the German translation of the president De Brosses' *Histoire des Navigations aux Terres Australes*, 2 Tomes, Paris, 1756. In the original French the statement reads (Tome 1, p. 247): "A quatre lieues au nord-ouest de ce cap on voit quatre petites isles en pains de sucre: Four leagues to the northwest of this cape are seen four little islands shaped like sugar-loaves."

Nothing is said in the text about naming the islands.

The difference exists, no doubt, but the name *Islands of Direction*, which does not explain itself, is no improvement on Sarmiento's *Evangelists*; and this has, in fact, been adopted by the English.

In the chapter on *The Canadians and Yankees* Dr. Egli notes the American patriotic spirit which has expressed itself in so many repetitions of the names of presidents and other public men, more or less distinguished; but he is mistaken when he ascribes to the influence of culture the violent transfer of such names as Babylon, Rome, Egypt and Syracuse to the map of the United States. This abuse, traceable in many instances to a single person, is due to the lack of culture and to poverty of imagination.

THE SUN'S ATMOSPHERE.—On the 25th of October last M. Janssen read before the Institute a paper on his observations made at the Mont Blanc Observatory, Sept. 14 and 15, on the absence of oxygen from the atmosphere of the sun:

"We already knew," he said, "that the radiating surface of the sun was protected from contact with the icy celestial space by several gaseous envelopes. Of these the uppermost is the so-called Corona which produces, in total eclipses, the splendid phenomena of the glories and the crown. This uppermost envelope is mainly composed of hydrogen, the lightest and most transparent of gases. This transparent and protecting atmosphere insures the chief function of radiation, and we now see that by an equally admirable arrangement oxygen, the substance which might jeopardize this function, has been carefully excluded."

THE OPEN ARCTIC SEA, AND 84° N. LATITUDE.—According to the Portland *Oregonian* Capt. A. H. McGregor, of the Pacific Whaling Company's steamer *Orca*, reports that nine of the Company's vessels passed the season of 1892 near Cape Bathurst, "*the farthest point north and east ever reached by a vessel of*

any kind," entering the Arctic through Bering Strait. Captain McGregor adds :

" We could have made the trip from the Pacific to the Atlantic last year if we had so desired, but our business was whaling, not exploring. We found what is called the breeding-ground of the whales, which lies between Cape Bathurst and the Mackenzie River. We left four vessels, the *Norwalk*, *Balaena*, *Grampus*, and *Newport*, to winter there while the others finished the season on the Siberian coast. Those that wintered in the Arctic have been whaling all summer, but we have had no report from them and do not know if the ocean is open again this year. Natives at the cape whom I questioned told me that the ocean was fairly open three years out of four, and that there was a great big sea one year in five. Last year was what they termed 'great big sea,' and they said that the same conditions prevailed in 1889. A large vessel could not pass through a fairly open sea, so the chances of reaching Greenland through the Arctic Sea are one in five. From this I am inclined to the belief that Collinson entered the ocean when it was 'open.'"

The statement as to the open condition of the Arctic in 1892 is worthy of record, but the assertion as to Cape Bathurst is very far from the truth.

Even more remarkable than Capt. McGregor's story is that telegraphed, October 3, from San Francisco. According to this telegram the steam whaler *Newport* spent the past winter near Herschell Island, and worked her way in the summer of 1893 as far as N. Lat. 84°, the highest point ever reached, and it was believed that the Pole might have been reached by a party, had the vessel been supplied with dogs and sledges. All these particulars were invented by the conscientious reporter. What the captain of the *Newport* really said is told in the following extract from a letter, written by Prof. Geo. Davidson, of the U. S. Coast and Geodetic Survey, on the 31st of October :

" The Captain has been in to see me and has given me some graphic descriptions of his actual experience in those waters. . . . But he reached only 73°, and is dreadfully annoyed that the newspaper reporter made such an erroneous statement when he had the truth before him. At 73° the Captain saw no ice blink to the northward and therefore he thinks there was clear water for probably forty or fifty miles."

LOST IN BAFFIN'S BAY.—J. A. Björling and S. Kalstinius, two young Swedish naturalists, left St. John's, N. F., with three companions in the schooner *Ripple*, in the summer of 1892, to make natural history collections in north-western Greenland and in Ellesmere Land.

They were scantily provided with means, and their vessel was known to be unfit for the dangerous voyage before them; but they went as if on a holiday excursion, and reached Godhavn in safety.

There they were kindly treated and supplied with provisions; and on the 2d of August they set sail again. Nothing had since been heard of them, till on the 17th of June, 1893, Captain Mackay, of the Scotch whaler *Aurora*, found in a cairn on Carey Island, in Baffin's Bay, the following records, which appeared in the London *Times* of November 18:

The first of the documents, both of which were written by Mr. J. A. Björling, is as follows:

"Visited South-East Carey Island August 16, 1892. I left Godhavn on the 2d of the month and sailed along the ice in Baffin Bay until the 13th, when I, in one day only, sailed across Melville Bay to Cape York. An easterly hurricane near that place drove me to the west, and at noon I was near Cape Parry, from which point I sailed over to Carey Islands in order to supply myself with some provisions from the English depôt. On August 17, after having taken on board the provisions from the Nares depôt, my schooner *Ripple* went ashore on the south side of this island, where you will find us in a small tent. A new report will be left here before we leave the island. (Dated) August 17, 1892.

"Postscript.—Having lost the ship I am obliged to winter in these regions. I leave this island on the 26th of August for Toulke Fjord. If I should be compelled to go from there to another place further notice will be deposited in the cairn at Pandora Harbour. With the provisions from the Nares depôt here, I hope to have food enough for myself and my four companions until June, 1893."

The second note runs thus:—

"To visitors to South-East Carey Island in 1893.—As you can see by my notices here, I tried, after the loss of my vessel, to reach Toulke Fjord in order to winter there, but after reaching Northumberland Island I was compelled from several causes to give up this voyage and return to Carey Island. I was detained

on this island by bad weather for a longer time than I anticipated. I start now for the Eskimos at Clarence Head on Cape Faraday in Ellesmere Land. As I hope that a whaler will visit Carey Island next summer in order to rescue me and my party I will attempt to reach that island before the 1st of July. Should none be there by the 15th of July, I must, if possible, go to the Danish settlements. Therefore, if you should visit this island later than July 1 and should find no notice from me concerning my voyage to the Danish settlements, I should be very much obliged to you if you would go to Clarence Head (50 miles from this) where I shall leave in a cairn on the most easterly point a notice concerning the fate of myself and my party during the winter. Finally, I beg you to send all notices from me to Professor Baron A. E. Nordenskjöld, Stockholm, Sweden, or to the nearest Swedish Consul, with a statement of the time and place where they were found. If I cannot reach the Eskimos our provisions will not last longer than to the 1st of January, failing supplies from any depôt. Party now consists of five men, of whom one is dying.

“S. E. Carey Island, 12th October, 1892,

“J. A. BJÖRLING, Swedish Naturalist.”

A PROPOSED ANTARCTIC EXPEDITION.—Dr. F. A. Cook, who was the ethnologist of the Peary North-Greenland Expedition in 1891–92, has been engaged for some months in preparations for an Antarctic Exploring Expedition in the autumn of 1894.

The start will be made from New York about the 1st of September, in a steam whaling vessel, provisioned for three years, and provided with two life-boats, one large enough to cross the sea between the South Shetland Island and South America. The course will be to the Falkland Islands, where supplies will be taken in, and thence directly to Louis Philippe Land, where one of the life-boats and a store of provisions will be left.

Advantage will be taken of the first opening in the ice barrier to press as far to the south as possible, and then to begin systematic scientific observations.

The travelling equipment will be made and perfected during the long Antarctic night, and as soon as the sun returns work in the field will be begun. The in-

land party will start for the south, and those who remain on the coast will continue their observations until the company reassembles, which will be about the 1st of March.

It is supposed that the Falkland Islands will be reached, on the return, about the 1st of May, 1895. Dr. Cook says :

"I do not expect to prolong the Southern sledge journey more than three months. On this journey the glacial phenomena, snow and ice formation, will be carefully studied. Many other important meteorological and geological observations may be made. A very novel investigation, and one to which I expect to devote a great deal of attention, is the Antarctic ice cap, which, perhaps, is nearly 3,000 miles in diameter, and probably nearly circular in form ; its thickness is a problematical matter, and has been a subject of much theorizing by scientific men."

This plan agrees in its general features with the one sketched by Dr. Jno. Murray, of the Challenger Expedition, in a paper on "The Renewal of Antarctic Exploration," read before the Royal Geographical Society, on the 27th of November.

Dr. Murray said that within the past few months he had been in communication with geographers and scientific men in many parts of the world, and that there was unanimity among them as to the necessity for South Polar exploration. The work of an Antarctic expedition would be to determine the nature and extent of the Antarctic continent ; to penetrate into the interior ; to ascertain the depth and nature of the ice-cap ; to observe the character of the underlying rocks and their fossils ; to take magnetical and meteorological observations both at sea and on land ; to observe the temperature of the ocean at all depths and seasons of the year ; to take pendulum observations on land, and possibly also at great

depths in the ocean ; to bore through the deposits on the floor of the ocean at certain points to ascertain the condition of the deeper layers ; to sound, trawl, and dredge, and study the character and distribution of marine organism.

It was for the Royal Navy to undertake the task, with two ships of 1000 tons each, and the operations should extend over three summers and two winters. Early in the first season a wintering party of about ten men should be landed somewhere to the south of Cape Horn, probably about Bismarck Strait, at Graham Land. The expedition should then proceed to Victoria Land, where a second similar party should winter, probably in McMurdo Bay, near Mount Erebus. The ships should not be frozen in, but should return to the North, conducting observations of various kinds towards the outer margins of the ice. After the needful rest and outfit, the position of the ice and the temperature of the ocean should be observed in the early spring, and later the wintering parties should be communicated with, and, if necessary, reinforced with men and supplies for another winter. During the second winter the deep-sea observations should be continued to the north, and in the third season the wintering parties should be picked up, and the expedition return to England.

THE LIVERPOOL GEOGRAPHICAL SOCIETY.—The second winter session of this young Society was opened on the 10th of October with an address by Mr. Clements R. Markham, President of the Royal Geographical Society, on “ The Exploration of the Polar Regions, including Arctic and Antarctic.”

Mr. Markham affirmed the many uses, scientific and economic, of expeditions to the frozen North and South. He said that the hydrography of the Arctic seas had a most important bearing on the general question of oceanic winds and currents, as well as the temperature of the sea at various depths, and the prevailing winds with reference to currents. The climate of Europe depended in no small degree on the atmospheric conditions of the polar area, because the development of extremely low temperatures necessarily leads to corresponding extreme changes of pressure and other disturbances, the effects of which were felt far into the temperate zone. For the satisfactory appreciation of these phenomena a precise knowledge of the distribution of land and water within the Polar area was absolutely necessary.

Explorations in the Arctic had advanced the knowledge of magnetism and geology, of botany and zoology and every branch of biological science.

By work in the Antarctic regions light might be thrown on many interesting scientific speculations, such as those of Mr. Henry O. Forbes, derived from a study of the fossil birds of the Chatham Islands. He conceived the existence in tertiary times, of a vast Antarctica, clothed with vegetation, which connected New Zealand with South America and with Madagascar. Antarctic researches would test this and other explanations of puzzling biological facts which were still under discussion, either corroborating them, or perhaps explaining the phenomena which had given rise to them in other ways.

The greatest national value of these expeditions would

always be, however, that to which Lord Beaconsfield alluded, and which influenced his Government—"Polar expeditions encourage that spirit of enterprise which has ever distinguished the English people."

It was Lord Beaconsfield, also, who declared that the English were ruled by rhetoric, and not by logic. In the rapidity of this descent from the heights of science, it appears to have been forgotten that the English spirit of enterprise showed itself before Polar expeditions were heard of, and that some very enterprising nations have not turned their energies towards Arctic exploration.

THE LEWIS AND CLARK EXPEDITION.*—Full as the title of this book seems to be, it is marked by some omissions. Where brevity is no object the entire name, the "United States of America," should adorn the page; the expression *etc.*, while it leaves scope for the imagination, disappoints the reader, who looks for exact information; and no reference is made to the Dedication, which must have cost more than one anxious night.

* History of the Expedition under the Command of Lewis and Clark, To the Sources of the Missouri River, thence across the Rocky Mountains and down the Columbia River to the Pacific Ocean, performed during the years 1804-5-6, by Order of the Government of the United States. A New Edition, Faithfully Reprinted from the only Authorized Edition of 1814, with Copious Critical Commentary, prepared upon Examination of Unpublished Official Archives and Many other Sources of Information, including a Diligent Study of the Original Manuscript Journals and Field Notebooks of the Explorers, together with a New Biographical and Bibliographical Introduction, New Maps and other Illustrations and a Complete Index. By Elliott Coues, *Late Captain and Assistant Surgeon, United States Army, late Secretary and Naturalist, United States Geological Survey, Member of the National Academy of Sciences, etc.*

In Four Volumes. 8°. Francis P. Harper, New York, 1893.

The book itself, fortified by the editor's scientific and historical notes and properly indexed, will be welcomed by many who do not share Dr. Coues's enthusiasm with regard to what he calls "our national epic of exploration."

The text is substantially that of the Biddle edition, which, however, is not followed, as the preface declares, "punctiliously and with scrupulous fidelity"; for Dr. Coues immediately adds that he has touched the text here and there in a matter of grammar or punctuation, that he has interpolated one new chapter, and that he has changed the spelling of some proper names. It was, no doubt, quite right to do these things, but they are not consistent with scrupulous fidelity.

The notes add greatly to the value of the work, which may fairly be called the definitive *Lewis and Clark*, and Dr. Coues may be forgiven if he has not searched every corner of the country for possibly existing manuscripts relating to some of the men who went with the expedition. He has studied the original journals and notebooks, and the labor must have been severe, indeed, which wrung from him this humiliating confession :

"It was a daily draft upon a fund of omniscience which I am satisfied I never possessed." (Preface, p. vii.)

It is to be said, nevertheless, that with all his modesty Dr. Coues rarely shrinks from giving us the benefit of his opinion on matters not strictly scientific, as in the following passage :

" . . . for Thomas Paine's soul flowed into Jefferson's, bearing a precious quality of spiritual reasonableness, which informed and filled the mind of the greatest statesman America ever produced. What we owe to Jefferson is history—what Jefferson owed to Paine is the very mystery of godlikeness. It is well to keep the reputed paternity of our country before the common people by the name of Washington, and uphold William Tell among the simple Swiss ; but Washing-

ton's intellect shrinks out of sight before Jefferson's, and Jefferson's dwarfs in comparison with Paine's" (p. 467, note 17).

These are brave words ; but how are the common people, mere Americans, to retain their simple belief in the Father of his Country, now that the fierce light of Coues's intellect has been turned upon him ?

Other annotations, remarkable for knowledge of various subjects (grammar not included) and for good taste, occur on pp. 986-987 and 1192 ; and everywhere pearls are dropped by the way.

AROUND THE WORLD.*—The publishers of this new monthly magazine say, in their introduction :

"While not claiming originality of conception, having for precedents the admirable *Au Tour du Monde* and three or four German publications of an equally high order, the magazine may, with its initial number, justly assume its position as first of its kind for this country."

This position fairly belongs to the number, which is handsomely printed and illustrated, though it contains but 20 pages ; and it must be added that there is originality in the change of name bestowed upon *Le Tour du Monde*.

There should be a field for this publication, recommended as it is by its appearance and by the low price of subscription (\$1.50 a year), and edited by a writer, always eloquent in the cause of geography, though sometimes less than clear ; as when, on p. 20, he speaks of Bonvalot as "the successful transgressor of Central Tibet," and identifies the Land of the Rising Sun with China.

*Around the World : an Illustrated Magazine of Tours, Travels and Explorations, devoted to a Knowledge of the Earth and of its Inhabitants. Edited by Prof. Angelo Heilprin. Vol. I., No. 1, December, 1893. The Contemporary Publishing Company, New York and Philadelphia.

CURRENTS OF THE GREAT LAKES.—The *Monthly Weather Review*, for September, 1893, gives the results of the efforts made in 1892 to obtain some idea of the currents of the Great Lakes. These results are shown in a chart, published in September.

Bottles, so weighted as to float just beneath the surface of the water, were dropped by navigators in the open water of the Lakes. Of these bottles 463 were picked up and returned.

The surface-drift is made irregular by the variations of the wind, but, in general, the eastward motion toward the Saint Mary's River is very decided in Lake Superior. In Lake Michigan there is a strong southward surface movement on the western shore, gradually turning eastward and becoming northeast or north on the eastern shore of the lake until finally it flows steadily towards the Strait of Mackinac. In Lake Huron the surface flow is to the south, deviating eastward in the eastern portion with a decided set into Georgian Bay and westward with equal force into Saginaw Bay; but in the extreme southern part of the lake the motion is towards the River St. Clair. In Lake Erie and Lake Ontario the surface water is driven by the wind to the east-northeast.

The returns relate to the season of navigation in 1892, and principally to the period from April to October, so that the surface-floats must have described their course within a few months.

A note by the Editor of the *Monthly Weather Review* quotes from the *Transactions of the Canadian Institute* the account of an investigation of the currents of Lake Ontario by the Provincial Board of Health and

the Toronto City Council, in the summer of 1801, in the part of the lake near Toronto. The investigation satisfactorily showed that the lake currents are caused by the wind and that they change direction as the wind changes.

THE CLIMATE OF THE CITY OF MEXICO.*—Don Mariano Bárcena, Superintendent of the Central Meteorological Observatory of Mexico, has published in pamphlet form a paper on the climate of Mexico, prepared by him for the Meteorological Congress of the United States in 1893.

Accompanying the pamphlet is a résumé in English, from which the following extracts are made :

The observations taken hourly in the shade cover the years 1877–1892 ; those in the open air began in 1882 and were taken every three hours ; the data of the temperature of the soil and the magnetical data are deduced from a period of three years.

The mean annual height of the barometer is 586 mm. .37 (23.086 in.), the maximum in 16 years 594.19, the minimum 579.80.

The mean annual temperature is 15°.4 Cent. (59°.72 Fahr.), the maximum in 16 years, in the shade, 31°.6 (88°.88 Fahr.), the maximum, in the open air, 49°.2 (120°.56 Fahr.) and the minimum, in 16 years, in the open air, —7°.2 Cent. (19°.4 Fahr.).

The annual number of rainy days is 139 and the mean annual rainfall 604 millimetres (about 23.70 in.). The cloudy days average 120 in the year and the clear

* El Clima de la Ciudad de México—Breve Reseña por Mariano Bárcena, Director del Observatorio Meteorológico Central. 8vo. México, 1893.

days 105. The prevailing direction of the clouds is Southwest, and the prevailing wind is Northwest.

The mean annual humidity is, in the shade, 61 ; in the open air, 62. The coldest month is January ; the hottest April. The greatest quantity of rain falls in August ; the least in January and February. March and April are the driest months.

In the 16 years 37 shocks of earthquake, nearly all slight, were registered ; the heaviest, on the 19th of July, 1882, lasted 40 seconds and was felt over half the area of the Republic.

Mr. Bárcena's English is everywhere intelligible, with the exception of the phrase *invaluable duration* for *inappreciable duration*.

THE CLIMATE OF RIO DE JANEIRO.--Mr. L. Cruls, Superintendent of the Observatory, Rio de Janeiro, has published the results of the meteorological observations recorded during the forty years 1851-1890, accompanied by plates showing the variations of temperature, the humidity, the atmospheric pressure, etc.

The conclusions reached by Mr. Cruls from his study of the data before him are :

Atmospheric disturbances are rare and the barometer falls not more than from 5 to 10 millimetres (.1875 to .375 inch) and this in the course of a few hours, and generally under the influence of a strong *pampeiro*, blowing from the southwest. The greatest velocity of the wind is 30 metres a second=67 miles an hour.

The maximum annual temperature varies between 35° and 37°.5 Centigrade (95° and 99°.5 Fahr.). The highest thermometer is at the beginning of February,

the lowest early in July, and the mean annual variation hardly exceeds 6° Cent. ($10^{\circ}.8$ Fahr.). The daily variation is less than half this figure.

The oppressiveness of the heat in the summer is to be attributed to the great humidity of the atmosphere. The mean annual humidity amounts to more than 78 per cent., and the mean extremes show a variation of only 3 per cent.

The annual cloudiness of the sky (zero representing a cloudless heaven) amounts to 64 per cent., only 3 per cent. below that of Greenwich. There are 131 clear days in the year, a clear day being one with not more than one-half per cent. of cloud.

The annual rainfall is 1090 millimetres (42.84 inches), and there are 111 rainy days in the year. The precipitation is greatest in the months of March and December, and lightest in July. The heaviest rainfall for a single month was that of April, 1872, when there fell 455 millimetres (nearly 18 inches). In the forty years under review there were three months without a drop of rain: June, 1869, and August, 1879 and 1884. The greatest fall for any one year was 1556 millimetres (about 62 inches) in 1862, and the least was 732 millimetres (nearly 29 inches) in 1889.

There are 30 stormy days in the year; the extremes recorded being 11 in 1856 and 49 in 1862. The monthly average is 2.5. The stormiest month is January, with 6.3 days, and the least disturbed is the month of June with 0.3 day.

THE DROUGHT IN ENGLAND.—Mr. G. J. Symons, F.R.S., in a letter to the *London Times* of Oct. 7, re-

views the dry period which set in with March and closed with September of the year 1893.

In London the fall for the seven months was :

March.	April.	May.	June.	July.	Aug.	Sept.
.32	.24	.80	.73	2.46	1.61	1.07

The total for the seven months is 7.23 inches, and for the nine months, January–September, only 11.54 inches ; the average yearly rainfall being 25 inches.

The most noticeable feature in the review is that there were four consecutive months, each with less than an inch of rain. Mr. Symons finds but one other instance of the kind in his record of observations for thirty-five years, and that is for the four months, Oct., 1879–Jan'y, 1880, which show : October, .80, November, .72, December, .86, and January, .31.

In the counties of Middlesex, Surrey, Kent, Sussex, Herts, Bucks, Oxford, Bedford, Essex, Norfolk, and Wiltshire, that is, in nearly all the southeast of England, the four months March–June, 1893, were as dry as in London.

THE MANCHESTER SHIP CANAL.—This canal, intended to connect Manchester with the sea, was authorized by Act of Parliament passed in 1885, but the work was not begun till November, 1887.

The length of the canal is $35\frac{1}{2}$ miles, from Eastham on the Mersey to Old Trafford in Manchester ; the minimum depth of water is 26 feet, the minimum width at the bottom 120 feet, and the average width at water level 170 feet. To overcome the fall of between 60 and 70 feet in the whole distance there are five sets of locks. The three locks at Eastham measure, respec-

tively, 600 feet by 80, 350 feet by 50 and 150 feet by 30. The other sets of locks measure 600 feet by 65 and 350 feet by 45. The time required for the passage through the canal will be ten hours.

The docks constructed between Manchester and Salford for the accommodation of shipping have an area of 114 acres, and the quays cover more than 170 acres.

The cost of this canal, which adds one to the great seaports of the world, was £15,000,000.

It is announced that pilotage will not be compulsory, but many of the Mersey sea pilots, as well as others, will take charge of ships, and a plan of the canal is being prepared for their use. Many of the Mersey tugs are licensed to tow vessels in the canal, and arrangements are being made for the provision of powerful lamps for navigation by night. Steam and hydraulic cranes will be at hand to secure despatch in discharging and loading, and experienced stevedores are being obtained from various ports. The attention of shipowners is directed to the fact that the fixed bridges over the canal are 75 feet above the ordinary water level; the height of the masts should not exceed 70 feet.

CURRENTS IN THE BAY OF BISCAY.—Bulletin Nos. 14-15, 1893, of the Bordeaux Geographical-Commercial Society, contains a paper by M. A. Hautreux on the currents of the Bay of Biscay, carefully studied by him during the past summer.

Before entering upon his experiments M. Hautreux compared and analyzed the following documents :

1. The American Pilot-Charts, on which are indicated

the derelict vessels floating in the North Atlantic and the points at which they were encountered ;

2. The maps of the direction and probable intensity of the currents in the North Atlantic. These were drawn by Lieut. G. Simart and published by the French Ministry of Marine in 1889 ;

3. The chart published by Prince Albert of Monaco in 1892. This chart is based upon the experiments with floating bottles and kegs dropped by the yacht *l' Hirondelle* in her cruises in 1885, 1886, 1887, and 1888.

Four of the derelicts mentioned in the Pilot Charts, passed, without entering, the Bay of Biscay, drifting at the rate of 15 to 16 miles in 24 hours ; obeying, it is concluded, the impulse of a current which sets, between the meridian of the Azores and that of Finisterre (Spain), towards the opening of the Bay. Four other derelicts and two bottles entered the Bay, within which the current changes to a general S.S.E. direction ; and there appears to be between Cape Ortegal and the island of Ushant (Ouessant) a space of more than 100 miles in width, where the waters move in opposite directions and in eddies.

Lieut. Simart's map shows that the general movement of the waters is along the coast of France from the northwest to the southeast and then to the south ; the very reverse, that is to say, of what is known as Rennell's current.

The floats, thrown out from *l' Hirondelle*, found their way, not to the coasts of La Vendée and Brittany, but to the head of the Bay of Biscay ; and they gave no indication of a northward current along the coast.

M. Hauteux made his experiments with floats, composed of two bottles fastened together by a galvanized iron wire, 3 or $3\frac{1}{2}$ metres * (9.94 to 11.48 feet) in length. One bottle was nearly filled with water so as to sink and to keep the other floating, bottom up, on the surface of the water. United in this way, the bottles were unaffected by the wind and were moved solely by the surface current. The length of 3 metres was adopted in order that when the apparatus reached the coast the lower bottle, grounding at high tide, would keep the whole in a position to be picked up at low water; and on the coast of the Landes the high tide is never less than $3\frac{1}{2}$ metres.

Between May 26 and July 31, 40 of these floats were dropped and 21 were recovered. The points established seem to be :

1. Bodies floating in the Bay of Biscay are carried towards the coast of the Landes ;
2. They drift less rapidly as they approach the land ;
3. The direction of the drift curves towards the south, at a little distance from the coast ;
4. The time at which they make the land is closely related to the time of spring tide.

EMIN PASHA'S DAUGHTER.—It appears that Emin Pasha's child Ferida is now in Berlin under the care of her aunt. The Rev. Horace Waller, of Twywell Rectory, Thrapston, writes to the *London Times*, of Oct. 3:

"When Emin arrived on the coast of Africa at the end of 1889, and with a view to his daughter's future, it was deemed advisable that she should go through the legal process of 'adoption' to make doubly sure, as no valid proofs could be forthcoming of her father's legal marriage to his Abyssinian wife in the wilds of

* *Nature* of Oct. 19 (p. 601) makes the floats consist of "two bottles attached by a cord a metre in length." It is in this way that knowledge is increased.

the Soudan. His wife was dead, and he himself had just arrived at the required age—50 years, so that there was no impediment.

"The legal process was carried out forthwith, and one is relieved to find that Ferida Schnitzler is not only in good hands, but provided for, and a dweller amongst those who are inclined to score some points in Emin's favor which are hardly granted here.

"The child is described as being nine years of age, very small, but unusually pretty; she seems also to be high spirited and intelligent. She has no knowledge of the sad fate of her father, and the recollection of her mother, who died when she was five years old, has passed away."

MOUNT SINAI.—Prof. A. H. Sayce, in the *Imperial and Asiatic Quarterly Review* for July, regrets to disturb the convictions of the travellers who have journeyed among the monotonous and inhospitable rocks of the so-called Sinaitic Peninsula, but declares nevertheless that Mount Sinai is not to be found in the Peninsula.

It stood, according to his reading of the Old Testament record, on the borders of Edom, if not actually within the limits of the Edomite Kingdom, and the Yâm Sûph from which the Israelites approached it was the Gulf of 'Aqâbah.

The Egyptian monuments show that, at the period of the Exodus, the western half of the Peninsula was more strongly garrisoned by Egyptian troops than the valley of the Nile itself, and that it would have been madness for fugitives from Egypt to enter the territory.

Mr. Sayce concludes that, while we may never know where Mt. Sinai actually was, we have to look for it on the borders of Midian and Edom, among the ranges of Mount Seir and in the neighborhood of Kadesh-barnea.

This conclusion will go far towards tranquillizing the disturbed convictions of the pilgrims.

YEMEN.—The British Vice-Consul at Hodeida, in his last report, gives a description of Yemen, the south-western province of Arabia.

It is bounded north by the Hejaz, northeast by the Arabian Desert, southeast by Hadramaut, south by the Gulf of Aden, and west by the Red Sea. The capital is Sana, and the most important towns are Feizan, Loheia, Zobeid, Mokha, and Hodeida. Loheia is a seaport of some importance, Mokha is now in ruins, and Hodeida is the capital of the sea-coast plain, or Tihama.

The decline of Mokha dates from the occupation of Aden by the British, in 1839, and the coffee trade has been transferred to Hodeida, which is a town of 50,000 inhabitants.

Yemen is very fertile ; in most places there are two, and in some three, crops a year ; and rain is abundant in June, July, and August. The chief products are coffee, lentils, wheat, grapes, and many other kinds of fruit. The population is estimated at 3,000,000, and the industries are agriculture, trade, and dyeing and weaving. The domestic animals are camels, asses, and sheep.

The Vice-Consul offers the following explanation of the Arab decline :

“ The Arabs of the present day do not resemble the Arabs of the fifteenth and sixteenth centuries, when they were the only pioneers of civilization, and when they extended their conquests from Spain in the West to China in the East. Nowadays, on account of their intermarriages with slaves brought from Africa, the Arabs have morally and physically degenerated. Although I have seen some Arab captains using a rude kind of compass, I think the modern Arabs study neither navigation nor any other sciences.”

The explanation is less clear than it might be, pos-

sibly because the Arab pioneers of civilization in the fifteenth and sixteenth centuries seem to have escaped the notice of historians.

There can be no doubt that Negro slaves are carried into Arabia at the present day, as they were in the fifteenth and sixteenth centuries, and long before that period, so that the supposed recent degeneracy of the Arabs can hardly be due to the admixture of Negro blood.

An extended study of the Arab race by the Vice-Consul would be a boon to civilization.

THE INDIAN CENSUS FOR 1891.—The Report of the Indian Census Commissioner for 1891 is reviewed in the London *Times* of October 10.

The total population was 289,187,316, of whom 287,223,431 came under the census operations ; and of these 221,172,952 live in British India and 66,050,479 in the Feudatory States.

The area of India is 1,560,160 square miles, or about 3 per cent. of the land surface of the globe, while it contains about 20 per cent. of the world's population. The density for all India is 184 to the square mile ; for British India alone (exclusive of Assam and Burma) 279. France has 186, Austria 191, Prussia 223, the German Empire 237, Italy 249, England and Wales 498 and Belgium 540 to the square mile ; but England and Belgium are manufacturing, countries, while the Indian population is chiefly engaged in agriculture.

The rate of increase is 0.93 per cent. a year ; below that of England and Wales (1.28 per cent.), Germany (1.07), Canada (1.07), Belgium (0.99), and above that

of Switzerland and Bavaria (0.64), Spain (0.55), Sweden (0.50), Italy (0.62) and France (0.06.)

The Commissioner of the Census, Mr. Jervoise Baines, reaches the following conclusions :

We have every reason to assume that the present rate of increase among the people of India is well within their means of subsistence. If maintained, which of course it will not be, it would be 75 years before the population doubled itself, and the problem of their support would then, no doubt, be a hard one for our successors. . . . Summing up what has been said above as to the conditions that affect the growth of the population of India, it seems, first, that the number of children annually born into the country is a very high one, and that there is no prospect of its speedy or extensive decrease. Then, again, that the tendency of British administration is to prolong the normal life, and to protect it, as far as possible, against the abnormal attacks to which it is there liable. As regards provision against the contingencies to which the above conditions give rise, there is, first, the prospect of, for a time at least, increasing the yield of food-supply from the soil ; secondly, the resources for the purchase of food may be increased by the production of materials in demand abroad, or in home manufacture ; thirdly, the growth of the non-agricultural industries ; and, fourthly, the increase of the area of land under tillage, due to either the extension of irrigation or, still more, to the slow migration of the surrounding population, as pressure increases, to land as yet untouched by the plough.

The total number of persons not born in India, including the French and Portuguese possessions, was 661,637. Of these 478,656 were born in countries contiguous to India, 60,519 in remoter Asiatic countries (China included), 100,551 in the United Kingdom, 10,095 in Continental Europe, America and Australasia, and 11,816 in Africa, the islands, and at sea. Of the Europeans about 85,000 consist of the British troops and their families, 10,500 belong to the Civil service and 6,100 are employed on the railroads.

Classified according to religious belief, there are 207,731,727 Hindus, 1,907,833 Sikhs, 1,416,638 Jains, 7,131,361 Buddhists, 89,904 Parsis, 57,321,164 Moham-medans, 2,284,380 Christians, 17,194 Jews, and 9,323,-

229 not attached to any of the faiths named, and practising some form of ghost or fetish worship.

Of the whole population, 46 in a thousand can read and write, and, excluding Europeans and Eurasians, only 1.4 person in a thousand knows English.

Of the women between 15 and 40 years of age 84 per cent. are married, while the average in Europe is 40 per cent.

Nearly 26 per cent. of the children die in the first year, and the average duration of life, which in England is 44 years, is 24 years in India.

THE JAGANNÁTH FESTIVAL.—Puri, commonly known as Jagannáth, is the chief town of Puri District, Bengal. It is situated on the coast, in Lat. $19^{\circ} 48' 17''$, and E. Long. $85^{\circ} 51' 39''$, and it has a population of 22 or 23,000, nearly all Hindus.

The town has neither commerce nor manufactures, but derives its support from the pilgrims, who flock to the shrine of Jagannáth every year. The houses are built of wattle covered with clay, and raised on platforms of hardened mud, about 4 feet high, and, with the exception of the principal avenue which leads from the temple to the country-house of Jagannáth, the streets are mean and narrow. The enclosure of the temple is 652 feet long and 630 feet in breadth; and a stone wall 20 feet in height screens it from profane eyes.

Within the enclosure are 120 temples, the largest being the great pagoda dedicated to Jagannáth, which has a carved conical tower 192 feet high. The principal entrance is known as the Lion Gate, and before it stands a beautiful monolithic pillar which once adorned

the Temple of the Sun, 20 miles above Puri. There are four chambers in the temple; the Hall of Offerings; the Pillared Hall, for musicians and dancing girls; the Hall of Audience, and the Sanctuary, which contains images of the god, his brother Balabhadra and his sister Subhadrá. These images are carried upon cars from the temple to the country-house, through the adoring multitude. The distance is less than a mile, but the journey takes several days; and if deaths occur, they are accidental. Sir William Hunter, in the account from which these facts are taken, says that the whole spirit of the Vishnu-worship is opposed to self-immolation, and that accidental death within the temple renders the whole place unclean.

This being the year of reincarnation of the gods, the festival at Puri was one of peculiar solemnity. It was attended by a correspondent of the London *Times*, which printed his letter on the 30th of September. He says:

“Even in Calcutta the pilgrims were so numerous as to fill up the Chitpore and Strand roads at night, but ‘the India General’ and Macneill’s ships took them to Cuttack, and there the fifty three-mile walk commenced. All along the (good) pucca road might be seen magnificent up-country men from Delhi, Bareilly, and elsewhere, and as handsome down-country Telugu women, but the vast mass of the people were plain-looking and poor Bengalis and Uryas. There were few children. One could not help noticing that the majority of the pilgrims were women. The rains had set in and had swollen the wide river just outside Cuttack, but under the wall of the Commissioner’s compound we found country boats which were poled across by means of five bamboos, and so stemmed the fierce current. . . . We got over in about twenty minutes, and after two days hard travel reached Puri. About eight miles away a pilgrim caught sight of the handsome dome, and passing on the khabar (news) to others, in a minute or two every one could be seen pressing forward with the bright light of religious enthusiasm in his eye. . . . Some missionary counted us as we streamed over the bridge into Puri, and said that by two o’clock in the afternoon of Saturday, the 15th of July, the day of the reincarnation, 132,000 pilgrims had passed into the town. We arrived on the Friday night, and I went round the lodging-houses with Dr. Banks, the civil surgeon. I

freely confess that I did not want to go, and never having been in a Hindu lodging-house (dharmaala) before, I imagined all sorts of filth. There used to be such even in Puri, but now the lodging-houses and private houses are as clean as European bungalows. We went into one with a beautiful covered courtyard, and there certainly were 400 pilgrims in the courtyard and in the cloisters instead of 110, the number written on the license, but the place had no odor or heat. Others were the same with twenty, seventy, sixty sleeping. I found every Government official, from the collector and the policeman downwards, on the *qui vive*, and slaving night and day to get the festival over quietly and without row or accident. . . . At 10 P.M. the Hindu manager ordered the great doors to be flung open, and the sacred umbrella of silk (with twelve white silken tassels hanging from the centre below round the handle) came down the steps inside the temple and halted just inside the door. Then the tomtoms and the gongs and the trumpet made music, and the lac of pilgrims shouted as Balabhadra came out into the square, and was escorted to his car by devotees, who flung him pice, annas, even rupees. . . . The three cars for the three gods had been stationed in the street the day before. They consisted of three wooden tiers, the topmost surmounted by a scarlet and black cloth canopy, and the whole mounted on twelve wheels. They looked very picturesque by day and quite massive in the torchlight."

At 11 o'clock there was another blare and Subhadra came out to her car and half an hour later, the music sounded again and as soon as Jagannath's silk umbrella and pith sun hat of cardinal red and gold appeared, the crowd shouted "Hari Jagannath!"

It took a long time to carry the portly god to the space in front of his car and a still longer time to haul him up the plane, the real fact being that all this time offerings were pouring in to the priests. At a quarter to 1 A.M. the excitement was over and the throng dispersed.

Next morning (Sunday) the collector and policeman gave the order to haul Balabhadra along the street, and the three great ropes six inches thick were lined by willing men and women. Three hundred were at one rope, and then hundreds fanned the god 20 and 30 yards away, hoping that this work of supererogation would be put to their credit in the eternal bank.

On Monday, the 17th of July, both Subhadrá and Jagannáth were pulled half a mile along the Bara Dhan. Every one in the street wore a contented smile, because he knew that he had worked out his own salvation. . . . The poor Hindu had accomplished the dream of a lifetime ; he had gazed on the face of Jagannáth ; he had pulled his car ; he had paid four pice (*1d.*) for a linoleum painting of the trinity, and this would interest his children for years to come. It would be an heirloom. . . . On Tuesday, the 18th, the three cars were dragged a considerable distance, but most of the pilgrims were already on the way to their homes and the priests were left to count up their gains.

THE FRENCH TREATY WITH SIAM.—The *Revue Française*, of October 15, publishes the text of the treaty signed at Bangkok, on the 1st of October, by the French and the Siamese plenipotentiaries.

By the 1st Article Siam renounces her claim to the territory on the left (eastern) bank of the Mekong, and to the islands in the river.

By the 2d Article Siam agrees neither to keep nor to navigate any armed boat or vessel on the Great Lake (Toulé-Sap), or the Mekong, or their tributaries in the provinces of Battambang and Sien-Reap ; and the 3d Article binds the Siamese government not to construct any fortified post or military establishment in either of these provinces, or within a radius of 25 kilometres (15.53 miles) on the right bank of the Mekong. No armed force is to be maintained by Siam in the districts named in the 3d Article (Art. 4), and

the police service will be carried on as usual by the local authorities.

Until an agreement is made between the two governments with regard to the commercial regulation of the districts named in Article 3, no duties shall be therein levied; and the Siamese government agrees, by the 5th Article, to open negotiations for the said regulation within six months.

Article 6 reads: "As the development of the navigation of the Mekong may render necessary certain works on the right bank, or the establishment of relay stations for boats and depôts of wood and coal, the Siamese government binds itself to give, on the request of the French government, all the necessary facilities for this purpose."

By Article 7 French citizens, and those subject to French jurisdiction, shall be free to travel and carry on their business in the territories mentioned in Article 3, when provided with a pass from the French authorities; and reciprocity will be accorded to the inhabitants of the said territories.

By Article 8 the French government reserves the right to establish consulates where it shall think proper for the interest of French citizens, subjects or dependents, and particularly at Korat and at Muang-Nam. The Siamese government shall grant the sites necessary for the said consulates.

In case of difficulties arising, the French text shall be the sole authority (Article 9).

Article 10 provides that the treaty must be ratified within four months from the day of its signature.

The provisions of the treaty are, perhaps, more satis-

factory to France than to Siam; and it is easy to imagine that many things may be done hereafter in virtue of the significant 6th Article.

FATHER HUC AND HIS CRITICS.*—Prince Henri d'Orléans has reprinted in this little book articles contributed by him to the *Revue Française* and the *T'oung-pao* in defence of Father Huc's truthfulness in his *Travels in Tartary and Tibet*. When this book of travel was published, in 1851, it was received with a certain amount of incredulity, but the only serious attack made upon it was by Prjevalsky, who visited the same regions twenty years after Huc and Gabet's famous journey. The Russian traveller must be supposed to have meant what he said when he declared that Father Huc's account of the country, after leaving the Koko Nor, was entirely false. Prjevalsky's authority as a scientific explorer has so far prevailed with many geographers, notwithstanding the vindication of Huc by the English scholars Ney Elias, Col. Yule and others, that Prince Henri has been impelled to give his own testimony. In his travels in Tibet he found himself in districts for which Father Huc's volumes furnished the only available European source of information; and he was always surprised at the missionary's accuracy, the fidelity of his descriptions and his precision with respect to the smallest details.

Similar testimony is borne by Mr. Rockhill in his *Land of the Lamas*, pp. 125, 126. He says that Huc frequently embellishes,† but that he never invents, and

* Le Père Huc et Ses Critiques, Par Henri-Ph. d'Orléans. 8°. Calmann Lévy, Paris, 1893.

† Prince Henri, or his printer, translates the word *embellished*, in Mr. Rockhill's remarks, by *emballé* (packed).

that, altogether, his work cannot be too highly praised, and that if it had been properly edited, with explanatory notes, accusations like those made by Prjevalsky would have found no acceptance.

THE GREAT EARTHQUAKE OF JAPAN IN 1891.*—Twenty-eight of the photographs reproduced in this volume represent scenes of ruin caused by the convulsion of 1891, and it adds to the interest of the views to know that they are printed on paper, which is manufactured only in Echizen, in the earthquake district.

Japan is shaken every year by at least five hundred earthquakes, and in some years one or two thousand shocks are added to the average number.

Besides earthquakes, volcanic explosions threaten certain sections of the country. There are three lines of weakness through which the volcanic forces have made their way. The first—at least 1000 miles long—comes from Kamtchatka through the Kurile Islands and Yesso down to Nippon. Here it is met almost at right angles, by a second line about 1500 miles in length, coming from the Ladrone Islands through the Bonin group. The third line runs from the Philippines through Formosa to the centre of Kiushiu, where it terminates in Asosan, a volcano with a ring-formed crater ten miles in diameter.

The earthquakes are most frequent along the east coast of Japan. They do not come from the volcanoes

* The Great Earthquake of Japan, 1891. By John Milne, F.R.S., Professor of Mining and Geology, Imperial University of Japan, and W. K. Burton, C. E., Professor of Sanitary Engineering, Imperial University of Japan. With Plates by K. Ogawa. Lane, Crawford & Co., Yokohama, Japan. Long 4°.

and their frequency shows no relationship to the volcanic action.

The disaster of 1891 occurred on the 28th of October, in the centre of the empire, in the prefectures of Aichi and Gifu. The disturbance was very widely felt, but the destruction of buildings and engineering works was chiefly within an area of 4200 square miles. About 10,000 persons lost their lives, 15,000 were wounded, and 100,000 houses were levelled. The waves of motion were short and rapid, the ground was fissured, and small mud volcanoes were created.

In Tokyo, more than 200 miles from the centre of action, the ground moved in long, easy undulations, like those of a raft rising and falling on an ocean swell. The plates which give the liveliest idea of this great convulsion are No. X., which shows a line of railway twisted from side to side for a long distance, and No. XXVI., in which the Nagara Gawa Railway Bridge is broken up into sections, lying at various angles.

THE TUNISIAN GEOGRAPHICAL SOCIETY.—The *Revue Française*, of Nov. 1, notices the formation of the *Société de Géographie de Tunisie*, with the following officers: Hon. Pres't, M. Ch. Rouvier, French Resident; Pres't, Commandant Servonnet, naval attaché to the Residency; Vice-Pres'ts, MM. Auguste Pavy and Dr. Bertholon; Secretary, M. E. Benoît.

It is to be supposed, though it is not stated, that the Society is established at Tunis.

EGYPTIAN IRRIGATION.—It was announced on the 31st of October that the Egyptian Under-Secretary of State for Public Works would proceed up the Nile

towards the end of November to prepare himself for giving a final opinion upon the five schemes for the construction of a great reservoir in Upper Egypt; and that the Government would ask the Powers to concur in the appointment of a Commission of European experts to visit Egypt early in 1894, in order to make a definite selection of the best scheme.

ENGLISH AND GERMAN WEST AFRICA.—The text of the Anglo-German Agreement, respecting the *hinterland* of the territories claimed by Great Britain and Germany back of their colonies on the Gulf of Guinea, has been published in England, as follows :

Article 1.—The agreement of 1886 having stipulated that the point where the boundary shall reach the river Benue shall be fixed to such a point to the east of, and close to, Yola, as may be found on examination to be practically suited for the demarcation of a boundary, that point shall be fixed as follows :—The boundary drawn from the point on the right bank of the Old Calabar or Cross River, about 9° 8' longitude east of Greenwich, marked "Rapids" in the English Admiralty chart referred to in the agreement of 1885, shall follow a straight line directed towards the centre of the present town of Yola. From that centre a measuring line shall be drawn to a point on the left bank of the river Benue five kilometres below the centre of the main mouth of the river Faro; from the latter point the circumference of a circle, the centre of which is that of the present town of Yola, and the radius of which is the aforesaid measuring line, shall be described, south of the Benue, continuing till it shall meet the straight line drawn from the Old Calabar or Cross River. The boundary deflecting from that straight line at this point of intersection shall follow the circumference of the circle till it shall arrive at the point where the circumference reaches the Benue. This point on the Benue shall henceforth be accepted as the point to the east of, and close to, Yola, mentioned in the agreement of 1886.

Article 2.—The boundary determined in the preceding Article shall be continued northward as follows :—A line shall be drawn from the point on the left bank of the river Benue fixed in that Article, which, crossing the river, shall go direct to the point where the 13th degree of longitude east of Greenwich is intersected by the 10th degree of north latitude. From that point it shall go direct to a point on the southern shore of Lake Tchad, situated 35' east of the meridian of the centre of the town of Kuka, this being the distance between the meridian of Kuka and the 14th meridian east of Greenwich, measured on the map published in the German Colonial Atlas of 1892.

In the event of future surveys showing that a point so fixed assigns to the British sphere a less proportion of the southern shore of Lake Tchad than is shown in the aforesaid map, a new terminal point making good such deficiency, and as far as possible, in accordance with that at present indicated, shall be fixed as soon as possible by mutual agreement. Until such agreement is arrived at, the point on the southern shore of Lake Tchad, situated 35° east of the meridian of the centre of the town of Kuka, shall be the terminal point.

Article 3.—Any part of the line of demarcation traced in this agreement, and in the preceding agreements, shall be subject to rectification by agreement between the two Powers.

Article 4.—The territories to the west of the boundary line traced in the present agreement shall fall within the British sphere of influence, and those to the east of the line shall fall within the German sphere of interest.

It is, however, agreed that the influence of Germany, in respect to her relations with Great Britain, shall not extend eastwards beyond the basin of the river Shari, and that Darfur, Kordofan, and Bahr-el-Ghazal, as defined in the map published in October, 1891, by Justus Perthes, shall be excluded from her influence, even if affluents of the Shari shall be found to lie within them.

Article 5.—The two Powers make, as regards the extended spheres of influence traced in the present agreement, a similar engagement, as regards their respective spheres, to that taken in the preceding agreements.

They agree that neither will interfere with the sphere of influence of the other; and that one Power will not, in the sphere of the other, make acquisitions, conclude treaties, accept sovereign rights, or protectorates, or hinder or dispute the influence of the other.

Article 6.—Great Britain recognizes her obligation to apply, as regards the portion of the waters of the Niger and its affluents under her sovereignty or protection, the provisions relating to freedom of navigation enumerated in Articles 26, 27, 28, 29, 30, and 33 of the Act of Berlin of February 26, 1885. Germany on her side recognizes her obligation, under Article 32, to be bound by those provisions as regards the portion of the waters under her control.

This agreement will hardly be admitted by France, which has claims on Adamaua and on other countries here divided. The treaty of Dec. 24, 1885, between France and Germany assigned to the former Power the territories south of a line following the Campo River *from its mouth up to a point where it meets the meridian of 7° 40' east of Paris, and from that point following the parallel up to its meeting with the meridian of 12° 40' east of Paris.** Since that time the French have made

* Paris is 2° 20' 14" east of Greenwich. The Campo river flows in a general southwesterly direction and enters the Gulf of Guinea in 2° 20' N. Lat.

treaties with tribes on the Shari river and have annexed the valley of the Sanga.

There will be discussion before Germany finds herself in a position to profit by the generosity of England.

ENGLISH AND GERMAN EAST AFRICA.—The British Government has made public the text of the agreement between Great Britain and Germany respecting their boundaries in East Africa.

This agreement was signed at Berlin on the 25th of July, 1893. It provides that the boundary from the Indian Ocean to the northern side of Kilima-Njaro shall start on the coast from high-water mark on Ras Jimbo, and run thence in a straight line to the point at which the parallel of $3^{\circ} 40' 40.3''$ S. cuts the eastern bank of Lake Jipe. On the coast, however, the line is to be deflected along the northern bank of the Jimbo Creek, so as to leave the foreshore in the British sphere as far as the eastern mouth of the Ngobwe Ndogo. The line then follows the Ngobwe Creek to its end, and runs to the point where the straight line from the coast strikes the rising ground on which the village of Jasini stands.

At Lake Jipe the boundary follows the eastern shore and then the northern shore, to the northern bank of the Rufu River to a point an English mile east of the German road from Marangu to the coast.

From the Rufu River it is to run to the summit of Chala Hill, then through the Chala Lake and straight to the Useri camp, at the base of Kilimanjaro.

Five maps show the boundary and the preliminary surveys.

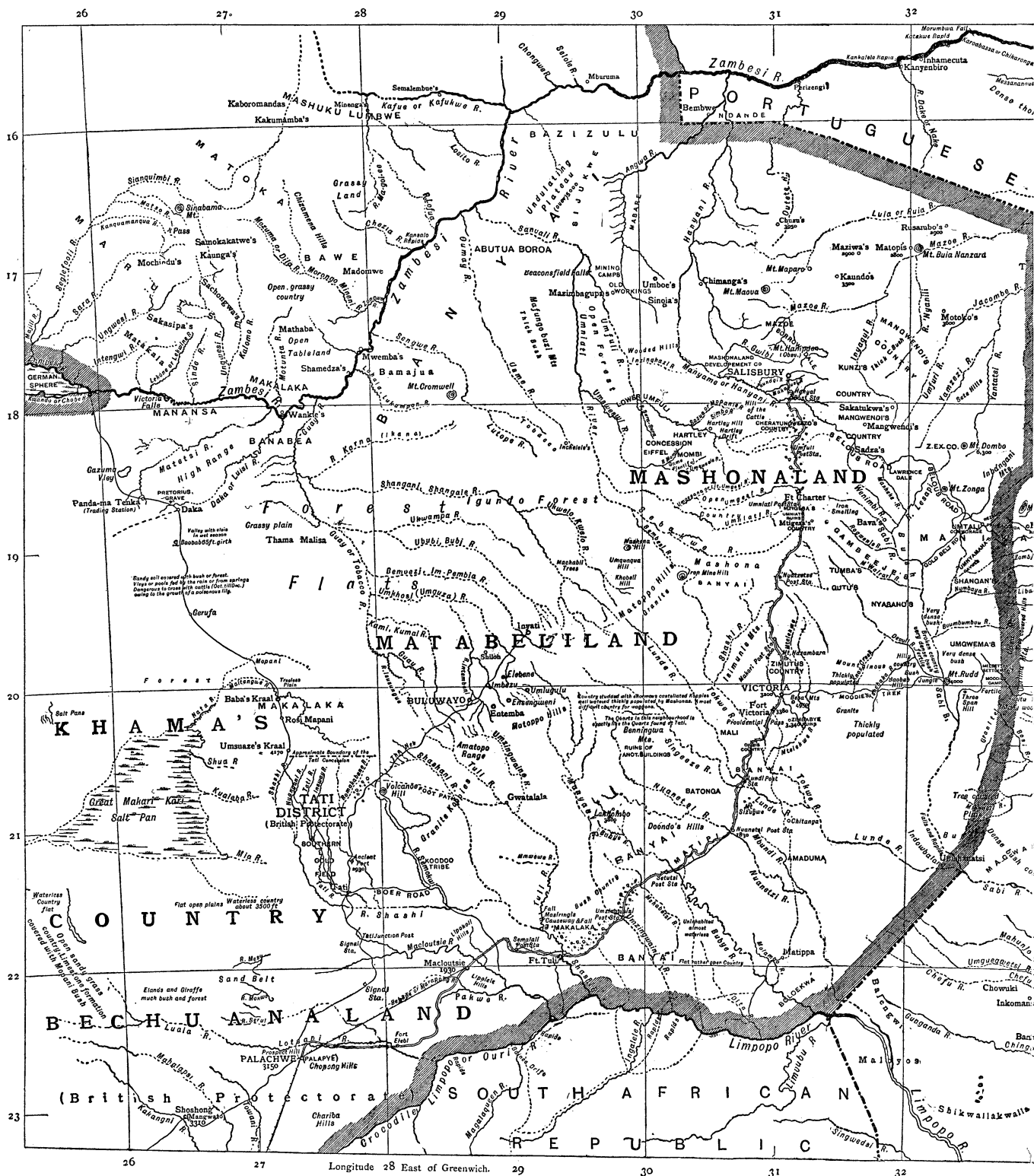
The limit as described is, with slight modifications, the one laid down in Map No. 4, of Kiepert's *Deutscher Kolonial-Atlas*, issued at the beginning of this year.

MATABELELAND.—The Matabele country is a tableland lying between 18° and 22° S. Lat. and 27° and 32° E. Long. It has a healthful climate, and a fertile soil watered by streams, which flow on the south towards the Limpopo and on the north to the Zambezi; and it is said to be rich in gold. Like Mashonaland, which the Matabele claim as their own, Matabeleland lies within the sphere of the British South Africa Company's activity, as that sphere is defined in the language, less precise than liberal, of the charter, in these terms:

"The principal field of the operations of the British South Africa Company shall be the region of South Africa lying immediately to the north of British Bechuanaland, and to the north and west of the South African Republic, and to the west of the Portuguese dominions."

Southwest of Matabeleland lies the kingdom of Khama, who is lending his aid to the South Africa Company.

The Matabele are descended from a Zulu tribe which emigrated to the north in 1835, and they form a well-organized military state, always prepared for a raid upon its neighbors. Dr. Emil Holub, the Austrian traveller, describes their discipline as Spartan in its severity. They are, he says, soldiers and that only. They form the *élite* of the native fighting men of South Africa; and he estimates that at least 150,000 human beings have perished in their annual raids, in which they kill the men and capture only women, boys, and cattle.



MAP OF THE TERRITORIES CLAIMED BY THE BRITISH SOUTH AFRICAN COMPANY.

(Reduced from the map published by the Company.)

This testimony agrees with that of all those who are acquainted with the Matabele. The Rev. A. M. Hartman, S. J., who lived as a missionary in Matabeleland for three years, declares that unless a stop is put to the cruelties of the Matabele, the Mashonas, their principal victims, will be exterminated. He adds :

Every care is taken that the warlike spirit of the nation is kept up. Means for this are:—

a. Their war songs are constantly on their lips.

b. The big war dance, kept every year at Buluwayo, where all the regiments meet together, feasting on beef and beer.

c. The very rites they perform at that festival have no other object but to inspire them with fearless courage. At this occasion human flesh is cooked, together with various kinds of medicines. This human flesh is taken from slain people. Superstition plays a great part in the performance of those ceremonies, all of which have relation to their war expeditions.

The old indunas fan the flames of bloodthirst by sarcasm and irony. "You are but girls," they say to the young warriors and "beardless boys," "How is it that you never yet bathed your assegais with human blood?" etc. In general, cowardice is looked upon as the greatest disgrace a Matabele can bring on himself.

Those who have known Lobengula, the king of this bloodthirsty nation, do not agree in their opinions of his character.

According to some he is a monster of cruelty and perfidy ; but others have better words for him, and the evidence of Mr. Harold Crichton Browne is wholly in his favor. That gentleman says, in a letter written to the London *Times* from the Garrick Club, on the 15th of October :

"I was practically taken prisoner and conducted to his capital when trespassing in his territories, where I had no business to be, and when occupied in a way that might reasonably have given rise to suspicion (I was photographing and making notes for maps), and had I been assegaied on the spot I should, if I may be permitted the Hibernianism, have had no valid objection to offer. But I was treated with great kindness, and was courteously received by the king, and feel bound therefore to protest against the representation of him as a wholesale butcher, delighting in his trade."

Lobengula and his people like most savages, take

themselves seriously and think they have a mission to perform. It might surprise them, if they could be made to understand it, to see the map which the British South Africa Company published in November. In this map the Company assigns to itself, from motives of practical philanthropy, all the territory lying between the Limpopo and the Zambezi rivers and extending to the eastward as far as the meridian of 33° E. Long. This includes the kingdom of Lobengula as well as Mashonaland ; and it is said that the protection of the Mashonas against their fierce neighbors was the consideration that moved the South Africa Company to begin the war, which seems likely to open a field for enterprise and to add also, in the fulness of time, a colony to the British Empire.

Whether the gold-reefs prove to be extraordinarily rich or not, it will be a gain to the cause of humanity to restrain the Matabele, as the English will restrain them, from working their pleasure upon an inferior race ; the English themselves being set free, by civilization and the lofty sense of duty, from the temptation to abuse their own power.

The warlike nature of the Matabele may be so far modified, under control, as to make them energetic workers in the development of British South Africa ; and it may be hoped that in a few years they will have ceased to dream of bathing their assegais, and will have learned of their civilized conquerors to draw first blood and to flesh their maiden swords.

It was while the crusade against the Matabele occupied the public mind that Capt. Lugard, in his book, *The Rise of Our East African Empire*, denounced the

slave trade now carried on in the British Protectorate of Zanzibar. The indifference to the wrongs of the East African negroes living under the English flag offers a painful contrast to the fiery zeal for the protection of the innocent Mashonas, though it may be explained by the fact that Zanzibar is a recognized British possession, while the country of the Matabele is a desirable domain yet to be acquired.

Contrasts are not wanting in the record of the English excitement concerning the Matabele war, and one of the most impressive is presented in the following utterances :

The Bishop of Derry, in a sermon preached in Westminster Abbey on the 21st of September, said that he longed to see Mashonaland open to civilization and to the missionaries of the Cross. He believed we should not tell the few brave men in that far land

"to act out the Sermon on the Mount whenever it was advantageous to them, but if they found the contrary course advantageous to drop it and have recourse to the sword."

If the Bishop forgets who was the Author of the Sermon on the Mount, others remember Him. On the 7th of November, Mr. J. E. Ellis, M.P., presented to Mr. Gladstone the following memorial, signed by the Clerk of the quarterly meeting of the Society of Friends :

"We have been deeply pained by the information communicated in the public Press of the appalling slaughter which has taken place in Matabeleland by the armed forces of the Chartered Company of South Africa. We strongly feel that such methods of prosecuting commercial enterprise are entirely incompatible with the Christian religion, and we regard it as a disgrace to our nation's profession of Christianity that in this, as in so many preceding instances, the settlement of our countrymen as colonists in uncivilized lands has been accompanied by wars of extermination. We would press upon the Government the importance in any future arrangements of doing nothing to sanction or facilitate such military inter-

ference with the rights and liberties of native races, children with ourselves of one common Father. In view of the responsibilities now devolving on our Government, we trust that its action may be directed to insuring the treatment of the Matabele, not in a spirit of hostility and greed, but of justice, humanity, and mercy. We believe that this policy of justice and humanity is not only right in itself, but is absolutely essential if Great Britain is to be able with any effect to exercise her influence to prevent similar high-handed encroachment on native races by other civilized Powers."

THE ELDER EXPLORING EXPEDITION.—Vol. XVI. of the *Transactions* of the Royal Society of South Australia is reserved for the scientific results of the Elder Expedition of 1891, in South and West Australia. Of this volume Parts I. and II. have been issued. These contain Reports on the Vegetable Exudations, among which is a true Manna (*Myoporum platycarpum*), the first announced from Australia; on Lepidoptera, few in number; on Coleoptera, more numerous, and among them a *Scaritid*, which Mr. Blackburn proposes to call the *Trichocarenum Elderi*; on Land and Fresh-water Mollusca, of which seven species were collected; on Hymenoptera; on the Geology of the region traversed, with a list of rock specimens from east of the Murchison Goldfield; on the Meteorology, with detailed observations for every day, through nine months; on the Lichenes and Fungi, and on the Orthoptera and the Vertebrata. Of these last the most numerous are the lizards, of which thirty-seven species were collected. Four of these were previously unknown: *Diplodactylus Elderi*, the *Amphibolurus scutulatus*, the *Egernia Kintorei* (named in honor of the Earl of Kintore), and the *Lygosoma melanops*.

The two Parts are illustrated by seven plates and a large colored map, showing the geology of the route from Peake Telegraph Station to Annean Station.